CMOS ousts CCD and CIS

CMOS image sensor shipments surpassed those of Charge-Coupled-devices (CCDs), reports the market research company In-Stat.

This shift was the result of the camera phone market, where shipments more than doubled from 2003 to 2004.

"Camera phones have been the largest single application for image sensors since 2003," says analyst Brian O'Rourke. "And, what was once a high-end product for the Japanese market, has become a worldwide phenomenon."

The report found:
• While CMOS has surpassed CCDs, CCDs are not going away. They maintain substantial market share in many camera applications, including mainstream digital still cameras, security cameras, and camcorders.
• CMOS sensors are having success in other camera markets as well, including low-end digital still cameras and Web cameras.
• Even with its increasing market share, CMOS revenues will be less than CCD revenues through 2005, due to high CCD volumes and ASPs in markets such as digital still cameras and security cameras.

The report, "Image Sensors 2005: Camera Phones Drive CMOS Past CCDs in 2004" covers the market for image sensors, and provides annual forecast numbers through 2009.

CCD, CMOS and CIS market shares for each application, in both units and revenues, are provided annually for the forecast period.

Profiles of the world's leading image sensor suppliers are also presented.

Atomic level solutions

ProMOS Technologies, of Hsinchu Science Park, Taiwan has placed a purchase order for a production ALD system from Genus Inc, a member of the Aixtron Group.

The system will initially be used for the volume production of advanced memory devices, using 90nm technology, at the new ProMOS facility, Fab 3, located at Central Taiwan Science Park.

"Genus was chosen for its excellent production and service record in the 300mm DRAM market place. ProMOS looked for a technology innovator that could help us achieve our most advanced requirements rapidly.

"The tool was installed quickly and has been performing flawlessly to date. The fact that Genus CVD and ALD tools share the same platform and system design simplifies our operations and service," said Dr. Len Mei, senior VP of ProMOS Technologies.

The 300 mm ALD system will also be used for the production of advanced DRAM MIM films for sub-70nm and beyond.

This order is a further example of the growing acceptance of Genus ALD process technology and demonstrates the Aixtron Group's ability to supply the market with advanced technology.

Aixtron is currently focused on extending its silicon customer base in the Taiwanese market. The ALD market is of growing importance for developing and integrating new materials to enable production solutions for semiconductor devices with critical requirements.

Seeking to accelerate the deployment of these material solutions, new innovative Aixtron ALD, AVD, and MOCVD deposition technologies are expected to continue to evolve rapidly.

Genus Inc has also received a repeat order for its advanced 300mm CVD system from ProMOS Technologies.

The repeat order was received three months after shipping the first system to this 90nm DRAM site.

The tool will support the rapid production ramp and will be shipped in the 3Q of this year.

Printed oscillator completed

BASF Future Business GmbH is jointly developing leading edge printed electronics technology based on organic semiconductors that can be used in a broad variety of everyday applications.

BASF entered into two projects with Lucent Technologies Bell Labs and Printed Systems GmbH, Chemnitz, Germany, to create this technology, which is cheaper and less complex than traditional silicon-based processes used to manufacture ICs.

The recently completed project between all three companies successfully resulted in the production of the first fully printed, low cost, mass-produceable, ring oscillator. A ring oscillator is an IC made up of transistors that together produce defined periodical electrical signals, e.g. blinking.

In more complex circuits, such ring oscillators are often used as clock generators. With this prototype the BASF team was able to confirm that its IC was fully functional. This represents an industry first and major advancement on the way to the printing of low cost, highly flexible, integrated circuitry, using established offset and gravure-based printing processes.

BASF lent its expertise in the field of polymers and formulating inks to the project: Bell Labs supplied its know-how in developing organic semiconductors as well as its research into the materials, processes, and technologies appropriate for printing and testing circuitry. The printing expertise was provided by Printed Systems.

"The production of the ring oscillator was a significant breakthrough as it showed that the manufacturing process does work," said Dr. Florian Dötz, research scientist at BASF. "We can now move forward to the next stage."

The second project, which involves only BASF and Printed Systems, will now look to tap into new markets and applications in which the printed electronics technology can be used. Possible applications are RFID tags, flexible displays or lighting devices, electronic labels and large-area sensors.

"We estimate that markets for printed electronics technology may reach a potential of more than €20bn in the next 7 to 10 years, with more to come," said Dr Peter Eckerle, project manager at BASF Future Business.

"This reflects the wide range of new applications attainable with this innovative and cost-effective technology. Our goal now is to tailor and optimise our process to specific applications, and to develop marketable products together with partners within the next three years."